REMARKS

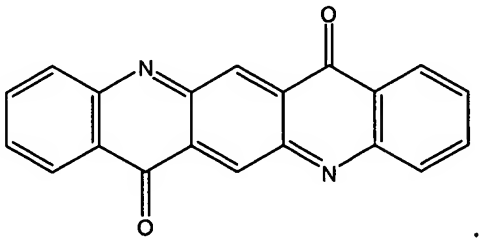
The application was filed with claims 1-16. Claims 1-9 were canceled by previous amendment. Claims 17-24 were added by previous amendment. New claims 25-29 have been added herein. Therefore, claims 10-29 are pending. However, claims 11 and 17-24 are withdrawn as being drawn to a non-elected invention. Thus, claims 10, 11-16, and 25-29 are under consideration. Claims 11-16, 21, and 24 have been amended herein.

Amendments to the Abstract

The abstract has been replaced. For the Examiner's convenience, a substitute Abstract, presented on a separate sheet, is enclosed herewith. The replacement abstract is intended only as a scanning tool for purposes of searching in the particular art and is not intended to be limiting of the present invention.

Amendments to the Specification

The chemical structure at the top of page 7 of the specification, as filed, has been amended to correct an inadvertent omission of a bond. One of skill in the art of polymer science and polymer additives would readily recognize that the structure shown on page 7 of the specification inadvertently omits a bond from the structure of "Q-dye." As shown in U.S. Patent No. 4,386,129 and U.S. Patent No. 5,310,584 (col. 4, ll. 40-50; cited by the Examiner in the instant Office Action), the well-known structure of "Q-dye" is



Amendments to the Claims

Claims 12-16 have been amended herein to distinguish between the polypropylene web of claim 10 and the biaxially oriented web of claims 12-16, as taught at, *inter alia*, pages 14-16 of the specification, as-filed.

Withdrawn claim 11 has been amended to recite "A method for making an oriented polypropylene web, wherein the oriented web is uniaxially oriented or biaxially oriented and wherein the web has thickness in the node junction region between the machine direction and transverse direction strands that is at least 10% less than that of a biaxially oriented web made from an extruded sheet with no added beta nucleant and the same starting sheet thickness, the method comprising the steps of:" as taught at, *inter alia*, pages 14-16 of the specification, as-filed.

Withdrawn claims 21 and 24 have been amended to correct certain typographical errors. More specifically, in claim 21, the phrase "wherein the" has been added and the structural drawing has been amended. No new matter has been added by these amendments. In claim 24, the phrase "to a" has been added. Support for these amendments can be found throughout the specification and specifically at, *inter alia*, page 7 of the specification, as-filed. Further, as set forth above, one of skill in the art would readily recognize that the structure shown on page 7 of the specification inadvertently omits a bond from the structure of "Q-dye."

New Claims

New claims 25-29 have been added herein. New claims 25-29 are directed to uniaxially oriented webs and are analogous to claims 12-16, which are directed to biaxially oriented webs. No new matter has been added by these new claims. Support for the new claims can be found throughout the specification and specifically at, *inter alia*, pages 14-16 of the specification, as-filed.

Drawings

Applicants note that the drawings received on September 7, 2005 have been accepted, thereby indicating that the drawings comply with all pertinent requirements.

Objections to the Specification

The Office Action has objected to the Abstract in that it exceeds 150 words. A replacement Abstract has been submitted herewith. The replacement Abstract does not exceed 150 words. Therefore, this objection is overcome.

Claim Rejections under 35 U.S.C. § 103(a)

As an initial matter, Applicant notes that none of claims 10 and 11-16 has been rejected under 35 U.S.C. § 102, thereby indicating that the pending claims are novel.

The Office Action has rejected claims 10 and 12-16 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 4,374,798 to Mercer (hereinafter "Mercer") in view of U.S. Patent No. 5,310,584 to Jacoby *et al.* (hereinafter "Jacoby"). Applicant respectfully disagrees that the pending claims are obvious in view of the cited references. That is, the cited references, alone or in combination, fail to suggest or motivate a "polypropylene web comprising a perforated extruded sheet comprising a propylene polymer comprising beta-spherulites in an amount sufficient to produce a K-value of about 0.2 to 0.95 when measured by x-ray diffraction or to show a beta crystalline melting peak during the first or second heating scan when measured using a differential scanning calorimeter," much less the various recited features of the oriented webs of the dependent claims.

To the extent that the Office alleges that the present invention would be rendered obvious by Mercer in view of Jacoby, the Office Action fails to set forth a proper *prima facie* obviousness rejection. Specifically, it is the burden of the Office to show that the prior art, when considered as a whole, teaches or suggests Applicant's claims. "There must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by

the applicant." *In re Kotzab*, 217 F.3d 1365, 1370 (Fed Cir. 2000). The suggestion or motivation asserted must also be supported by objective evidence. *See In re Dembiczak*, 175 F.3d 994, 999 (Fed Cir. 1999). The prior art must also provide a reasonable expectation of success for the proposed combination. *See In re Dow Chem. Co.*, 837 F.2d 469, 473 (Fed Cir. 1988). The asserted combination or modification must teach or suggest all claim limitations. *In re Royka,* 180 USPQ 580 (C.C.P.A. 1970) (stating that all claim limitations must be taught or suggested by the prior art). Thus, in order to establish a *prima facie* case of obviousness, the Office Action must prove that the prior art teaches or suggests all the limitations of the claim, that there is some suggestion or motivation in the references themselves or in the general knowledge of the art to combine or modify the references, and that there is a reasonable chance of success. In the instant application, the Office Action fails to prove at least (1) that there is some suggestion or motivation in the references themselves or in the general knowledge of the art to combine or modify the references and (2) that there is a reasonable chance of success.

- ***There is no suggestion or motivation to combine***

Mercer fails to even mention polymers comprising beta-spherulites. As stated in the Office Action, "Mercer fails to disclose a polypropylene web comprising a propylene polymer comprising beta-spherulites in an amount sufficient to produce a K-value of about 0.2 to 0.95 when measured by x-ray diffraction or to show a beta crystalline melting peak during the first or second heating scan when measured using a differential scanning calorimeter." (*See* Office Action, page 3, ¶8.)

Jacoby is unsuccessful in remedying Mercer's shortcomings in that Jacoby nowhere provides a suggestion to so modify the disclosure of Mercer. That is, while Jacoby arguably discloses a polypropylene composition for use in conventional thermoforming processes, Jacoby does not disclose a perforated extruded sheet comprising a propylene polymer comprising beta-spherulites in an amount sufficient to produce a K-value of about 0.2 to 0.95, much less the various recited features of the claimed oriented webs. Likewise, Jacoby does not suggest that its disclosed compositions are suitable for the production of plastic mesh structures. To the contrary, Jacoby only addresses conventional thermoforming processes, which "generally

involve heating a thermoplastic sheet above its softening point, forming the softened sheet and allowing the formed sheet to cool and harden" (*see* Jacoby col. 1, ll. 31-35). There is simply no mention of orienting perforated sheets.

Even if Mercer or Jacoby had taught or suggested the use of polymers comprising beta-spherulites in the production of plastic mesh structures, *which it did not*, Mercer and Jacoby nowhere teach or suggest that the use of polymers comprising beta-spherulites in the production of plastic mesh structures is desirable.

Because motivation to modify the plastic mesh structures of Mercer to arrive at the instantly claimed webs of the pending claims is absent from Jacoby, the Office Action has borrowed the requisite motivation from the disclosure of the instant application and, therefore, has engaged in impermissible hindsight reconstruction of the claimed invention. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." *In re Lee*, 277 F.3d 1338, 1343 (Fed. Cir. 2002). Hindsight reconstruction cannot support a proper *prima facie* rejection for obviousness.

- ***There is no reasonable expectation of success***

Likewise, Mercer and Jacoby do not supply a reasonable expectation of success in arriving at the claimed invention, upon making the allegedly suggested combination. That is, the cited references and the Office Action fail to provide any support for reasonable chance of success. Rather, the Office Action concludes, without support, that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to use Jacoby's polypropylene material as the polypropylene material in Mercer in order to improve the strength of the sheet." (*See* Office Action, page 4). This reference to improved strength, however, only bears scrutiny in the context of *thermoforming* applications, as taught by Jacoby. More specifically, Jacoby does not teach that a perforated extruded sheet containing beta spherulites has improved strength. While the Jacoby compositions exhibited improved sidewall strength, reduced warp, and improved low-temperature impact resistance, Jacoby merely discloses that

thermoformed containers made from the beta nucleated sheet had these improved properties. The term "sidewall" has no meaning in the context of a flat extruded sheet, and the sidewall only refers to the wall of a final *thermoformed* container. Likewise, reduced warp and improved low-temperature impact resistance are not analogous to the performance of perforated extruded sheets. Further, since the improvements in physical properties only occurred after the extruded sheets are *thermoformed* (*i.e.*, "heating a thermoplastic sheet above its softening point, forming the softened sheet and allowing the formed sheet to cool and harden"), it would not have been obvious that the orientation process employed in producing the final webs of the Mercer patent would have achieved this type of property improvement. Moreover, the nodes produced in the web taught in Mercer have no analogy in a *thermoforming* process. Therefore, there would have been no way of predicting that the uniaxial or biaxial stretching of a perforated polypropylene sheet containing beta spherulites would have led to a reduction in node thickness, and therefore an improvement in the final web strength. Additionally, due to the distinct differences in process (*i.e.*, thermoforming versus orientation), there would be no reasonable expectation of success in the alleged modification.

The bald assertion that "it would have been obvious," without more, can at best be used as evidence that it would be obvious to try to use Jacoby's polypropylene material as the polypropylene material in Mercer. However, as noted in MPEP § 2145, "obvious to try" is an improper standard under 35 USC § 103. This situation is analogous to the situation described by the *In re O'Farrell* court. Specifically, the court stated that:

> In some cases, what would have been "obvious to try" would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful.... In others, what was "obvious to try" was to explore a new technology or general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it.
>
> *In re O'Farrell,* 853 F.2d 894, 903 (Fed. Cir. 1988).

Said another way, two references simply being related or "in analogous arts" is insufficient to provide any expectation of successful combination – much less a reasonable expectation – in the complete absence of any indication that the combination could provide an improvement or that the combination would be likely to be successful in providing that improvement. Therefore, for at least these reasons, the Office Action has not set forth a proper *prima facie* obviousness rejection, and the rejection must be withdrawn.

- ***Superior results rebut any alleged* prima facie *obviousness rejection***

Moreover, even if *arguendo* the Office Action had properly set forth a *prima facie* obviousness rejection of any of the current claims for, *which it did not*, Applicants' specification provided disclosures and data on unexpectedly superior properties associated with the currently claimed compositions that would be sufficient to overcome any such *prima facie* rejection. In particular, the currently pending application teaches, *inter alia*, that oriented webs produced from the claimed perforated polypropylene webs have a thickness in the node junction region between the machine direction and transverse direction strands that is at least 10% less (*see, e.g.,* Table 2 at page 25 of the specification as-filed), have improved tensile strength, have increase torsional stability, and have a lower mass per area (*see, e.g.,* Table 4 at page 30 of the specification as-filed) than that of a biaxially oriented web made from an extruded sheet with no added beta nucleant and the same starting sheet thickness.

First, oriented webs produced from the claimed perforated polypropylene webs have a thickness in the node junction region between the machine direction and transverse direction strands that is less than conventional extruded sheets with no added beta nucleant. Specifically, as shown in Table 2, the node thickness for an oriented web produced from the claimed perforated polypropylene webs (#2, 12 ppm Q-dye) has a node thickness of 1.80 mm, compared to a node thickness of 3.81 mm for an oriented web produced from a conventional extruded sheet with no added beta nucleant (#1, 0 ppm Q-dye). With a node thickness of less than 50% of that in conventional webs, the inventive webs have more material in the strands between nodes, thereby providing substantially more uniform oriented webs.

Second, oriented webs produced from the claimed perforated polypropylene webs have improved tensile strength compared to conventional extruded sheets with no added beta nucleant. Specifically, as shown in Table 4, the machine direction ultimate tensile strength (24.3 kN/m) and the transverse direction ultimate tensile strength (36.4 kN/m) for an oriented web produced from the claimed perforated polypropylene webs (sample 3, 12 ppm Q-dye) is much greater than the machine direction ultimate tensile strength (19.2 kN/m) and the transverse direction ultimate tensile strength (28.8 kN/m) for an oriented web produced from a conventional extruded sheet with no added beta nucleant (sample 6, 0 ppm Q-dye). With an ultimate tensile strength of at least 25% greater than that for conventional webs, the inventive webs provide substantially stronger oriented webs.

Third, oriented webs produced from the claimed perforated polypropylene webs have increased torsional stability compared to conventional extruded sheets with no added beta nucleant. Specifically, as shown in Table 4, the torsional stability (8.7 cm-kg/deg) for an oriented web produced from the claimed perforated polypropylene webs (sample 3, 12 ppm Q-dye) is much greater than the torsional stability (6.5 cm-kg/deg) for an oriented web produced from a conventional extruded sheet with no added beta nucleant (sample 6, 0 ppm Q-dye). With a torsional stability of at least 33% greater than that of that for conventional webs, the inventive webs provide substantially more stable oriented webs.

Fourth, oriented webs produced from the claimed perforated polypropylene webs can be prepared from thinner extruded sheets having a lower mass per area (basis weight) compared to conventional extruded sheets with no added beta nucleant, while still maintaining physical properties (*e.g.*, tensile strength and torsional stability) that exceed that of the heavier, non-nucleated webs. Specifically, as shown in Table 4, an oriented web produced from the claimed perforated polypropylene webs (sample 3; 12 ppm Q-dye; 4.5 mm; 0.309 kg/m^2) has the same extruded sheet thickness and a similar mass per area to that of an oriented web produced from a conventional extruded sheet with no added beta nucleant (sample 6; 0 ppm Q-dye; 4.5 mm; 0.313 kg/m^2), while exhibiting substantially superior tensile strength and torsional stability (*see, e.g.*, Table 4, columns 3-8 and 10). Further, as also shown in Table 4, oriented webs produced

from the claimed perforated polypropylene webs (sample 4; 12 ppm Q-dye; 4.15 mm; 0.268 kg/m^2) (sample 5; 12 ppm Q-dye; 3.84 mm; 0.254 kg/m^2) each have a lower extruded sheet thickness and a lower mass per area compared to an oriented web produced from a conventional extruded sheet with no added beta nucleant (sample 6; 0 ppm Q-dye; 4.5 mm; 0.313 kg/m^2), while still exhibiting superior tensile strength and torsional stability (*see, e.g.*, Table 4, columns 3-8 and 10).

Thus, the inventive webs can provide substantially stronger, more uniform, and more stable oriented webs at a lower web thickness and mass per area.

Therefore, in view of the data presented in the as-filed application, any such obviousness rejection of claims 10 and 12-16 would be overcome, necessitating withdrawal of the rejection.

CONCLUSION

In light of the above arguments and amendments, the claims are believed to be allowable, and Applicant respectfully requests notification of same. The Examiner is invited and encouraged to directly contact the undersigned if such contact may enhance the efficient prosecution of the application to issuance.

Payment in the amount of $60.00 (reflecting a $60.00 fee for the One-Month Extension of Time for small entity) is enclosed herewith. The payment is to be charged to a credit card and is authorized by the signed, enclosed document entitled: Credit Card Payment Form PTO-2038. This amount is believed to be correct; however, the Commissioner is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 14-0629.

Respectfully submitted,
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D. Brian Shortell
D. Brian Shortell, J.D., Ph.D.

November 15, 2006
Date

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